

Daily Lesson Plan (DLP)

Topic: Research your growing zone		Day: 2
Grade: 4-5	Lesson Name: Research your growing zone	Time :(60 Mins.)

Topic	What gardening tools will you need?		
Weekly key words	Soil, dirt, organic, , etc.		
Seating plan	<input type="checkbox"/> Individual	<input type="checkbox"/> Pairs	Group of 4
Skill development	<input checked="" type="checkbox"/> Reading <input checked="" type="checkbox"/> Writing <input checked="" type="checkbox"/> Discussion <input type="checkbox"/> Presentation <input type="checkbox"/> Reflection <input type="checkbox"/> Illustration <input type="checkbox"/> Collaboration <input type="checkbox"/> Observation <input type="checkbox"/> Research <input type="checkbox"/> Other (Specify)		

<p>Objectives:</p> <p>➤ The students will be able to:</p>	<p>➤ Learn about components of soil</p> <p>➤ Learn how many types of soils</p> <p>➤ Learn how soil is important for plant to grow.</p>
<p>Teaching Resources:</p>	<p>Multimedia/projector, laptop, YouTube, writing board, notebook, piece of paper, pen/pencil, four samples of soils, 4 mason jars</p>
<p>Teaching Learning Strategies</p>	
<p>Introduction: 5mins</p> <p>The teacher will initiate the class by asking a few questions. Write down these questions on the writing board too and encourage students to answer. Take their responses and give feedback.</p> <ul style="list-style-type: none"> • <i>What is the difference between soil and dust?</i> • <i>Why is soil important?</i> • <i>What is in soil?</i> <p>Methodology: 05 mins.</p> <p>Show the following video to the students using a projector or multimedia.</p> <p>https://youtu.be/QtwMIIRX8TM</p> <p>Group Work: 10 min.</p> <p>Make each group of 4 students and encourage them to discuss the content shown in the video. (10 mins.)</p> <p>Discuss the difference between soil and dirt. The teacher will also explain that soil is the upper layer of earth surface that is made up of broken-down rock combined with living and non-living organic material. Living organic materials include bacteria and fungi, whereas non-living organic material consists of air, water, and broken-down leaves and animal dead bodies.</p> <ol style="list-style-type: none"> 1. Soil is important for plants to grow. 2. It helps plants to hold the ground. 3. Soil releases carbon dioxide that plants need to grow and release oxygen into the air. 4. Soil is home to many little organisms such as bacteria 5. Soil filters and helps to clean water <p>Background:</p> <p>The teacher will make background knowledge for the activity by sharing about the soil and its components.</p> <p>The Gardeners must be knowing what kind of soil they have in order to know how to make nutrients available for plant growth. Soil consists of minerals (broken-down rocks), water, organic matter (dead plant matter), gas (air), and microorganisms. The mineral content can be in the form of large pieces such as sand and pebbles, or very small pieces such as clay or silt. The size of the particles affect what kinds of plant will</p>	

thrive in your soil, and how much water it will need and how many nutrients are available. Typically clay soil needs more organic matter in order to add air pockets for plant roots and drainage. Sandy soil also needs organic matter in order to retain moisture and nutrients, as they drain more quickly and dissipate.

An ideal soil is composed of a mixture of mineral sizes, as well as organic matter, air and moisture.

These conditions encourage living soil that promotes a diversity of microorganisms.

In the activity, the students will become familiar with easily observable mineral and organic soil components.

Material

Take 4 types of soil samples (about 5 cups of each type) from diverse areas such as;

Soil from a well-established garden (school, home or community)

Soil from a parking lot or unimproved area (heavy clay)

Some compost, if available from your garden or bagged compost

Soil from your school garden

For each table: 4 mason jars with lids, perfectly quarter-sized 4 plates

1 cup of each soil pencil, and soil observation sheet for each group.

Preparation:

Before the class, take 1 cup from each type of soil and put it in a mason jar. Fill the jar with water and shake it vigorously. Place all of the jars in the classroom at least 2 days before the soil class to let them settle. You will use them at the end of class to demonstrate the different layers of soil. • Divide the soil samples so that there is one sample of each type on the table. Number each sample and make a note of its source for use during the discussion. • Divide the class into 4 groups, with one adult volunteer per group.

Activity: (35 mins.) (Group Work)

1. Talk about soil composition using the What's in My Dirt? handout attached with the lesson plan.
2. Each group should have 4 samples on their table, each numbered.
3. Each group should have a Soil Observation Sheet to record their observations. They should note: the color, texture, smell, how sticky, etc. Discuss the attributes of each sample. Then tell the students where each sample came from.
4. Ask the following questions:
 - Which sample has the most ideal attributes for growing food?
 - What does the school garden soil look like?
 - What are some ideas to improve the school garden soil?

Discussion:

Have the learners bring in samples from their homes and discuss their qualities. • Plants need three major nutrients to grow well: nitrogen (N), phosphorus (P), and potassium (K). Often native soils will have an abundance of one or two nutrients, but be low in another. You can also use a quick home test to get an overall idea of your garden's soil fertility. Try the Rapitest Soil Test Kit, available online or in garden stores.

- Take a sample of soil and send it to a soil lab for lead and nutrient testing. There are many different ways to test for the health of your soil. For more information about soil testing, and recommendations for labs, please refer to: <https://attra.ncat.org/attra-pub/viewhtml.php?id=285>

Wrap up (5mins.): Wind up the lesson by asking groups randomly to share their observations/results.

Home Assessment:

The students will do the worksheet in homework.

Worksheet (Day1)

Lesson Evaluation:

- Teacher was able to accomplish all aspects of the lesson well ☐
- Teacher was not able to do warm up activity ☐,
- develop lesson plan well ☐,
- do the learning activity ☐,
- do wrap up ☐,
- accomplish lesson objective ☐,
- manage time well ☐,
- manage class well ☐

Soil Observation Sheet

Soil Sample 1

Soil Sample 2

Soil Sample 3

Soil Sample 4

Handout

What's in My Dirt?

Clay

Sticky, heavy or chunky. You can roll it into balls.

Clay soil does not absorb water easily. But, when it is wet, it stays wet.

Sometimes plants cannot get enough air and water in clay soils.

Clay soils usually have plenty of nutrients, or minerals, that plants need to grow.

Silt

Soft and silky. Very fine particles, but does not stick together.

Silt does not absorb water well. The particles are very small and plants sometimes cannot get enough air. Water drains away very fast.

Sand

Grainy. Does not stick together.

Large particles have plenty of air and absorb water easily.

Water drains away very fast and sandy soil dries out quickly.

Soil nutrients can also be washed away quickly.

Humus

Crunchy, earthy smelling and woody.

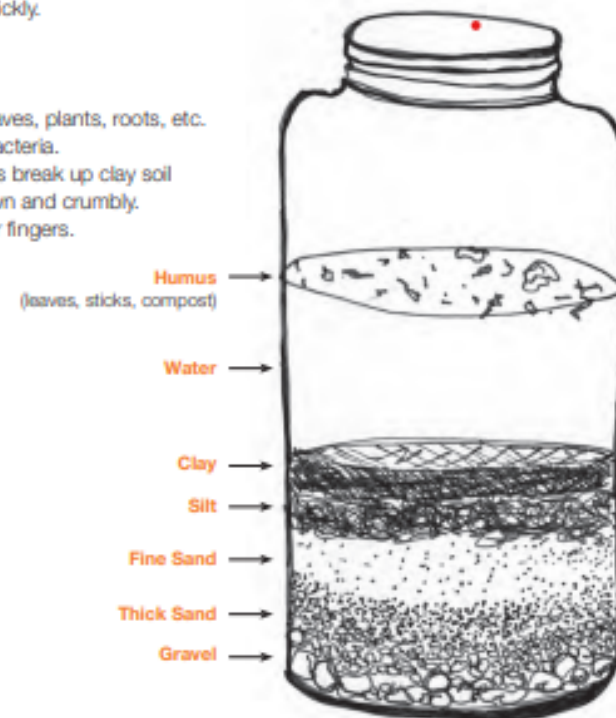
Decomposed living material made up of leaves, plants, roots, etc.

Humus also has living small animals and bacteria.

Humus is necessary for healthy soil. It helps break up clay soil

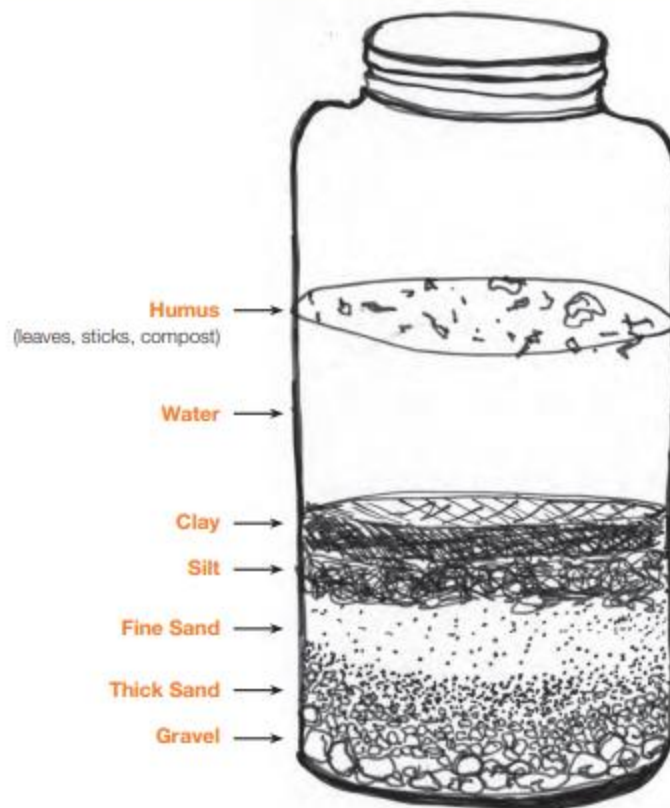
and holds nutrients for sandy soil. It is brown and crumbly.

It is a little slippery and sticky between your fingers.



Worksheet

Soil Layer Diagram



Using the soil layer diagram as a guide, select the phase(s) that matches your soil sample:

- ☐ Mostly sand and gravel, not much clay.
- ☐ Mostly silt, not much clay and sand.
- ☐ Mostly clay, not much sand.
- ☐ Lots of humus and organic matter.